

AMENDMENTS TO THE CLAIMS

This listing of claims supersedes all prior versions and listings of claims in this application:

LISTING OF CLAIMS:

1. (Currently Amended): A three-dimensional image display device, comprising:
a display panel which has a plurality of pixel sections each of which included a pixel displaying an image for the left eye and a pixel displaying an image for the right eye, said pixel sections being provided periodically in a direction, forming a perpendicular line segment; and
an optical unit that consists of a plurality of lenses that refract light emitted from said pixels,
wherein said optical unit refracts the light emitted from said pixels and emits the light in directions different from each other to make the light from different pixels incident to the right and left eyes of a viewer and to allow said viewer to recognize a three-dimensional image, and the lens pitch of said optical unit is less than 0.2mm, ~~or less~~.

2. (Currently Amended): A three-dimensional image display device, comprising:
a display panel which has a plurality of pixel sections each of which includes a pixel displaying an image for the left eye and a pixel displaying an image for the right eye, said pixel sections being provided periodically in a direction; and

an optical unit that consists of a plurality of lenses that refract light emitted from said pixels,

wherein said optical unit refracts the light emitted from said pixels and emits the light in directions different from each other to make the light from different pixels incident to the right and left eyes of a viewer and to allow said viewer to recognize a three-dimensional image, and ~~when~~ wherein the perpendicular distance between the longest from a most peripheral line segment out of line segments at the surface of said optical unit to the plane of the viewer's eyes, ~~which are parallel with the line segment connecting the pixels displaying said image for the left eye and the pixels displaying said image for the right eye, in a three dimensional visible range from which said viewer can recognize the three dimensional image, and the surface of said optical unit is set to a distance~~ OD (mm) and the lens pitch of said optical unit is set to L (mm), wherein said distance OD is 350mm or less, and said distance OD and said lens pitch L satisfy the following expression.

$$L \leq 2 \times OD \times \tan(1')$$

3. (Original) A three-dimensional image display device, comprising:

a display panel which has a plurality of pixel sections each of which includes a pixel displaying an image for the left eye and a pixel displaying an image for the right eye, said pixel sections being provided periodically in a direction; and

an optical unit that consists of a plurality of lenses that refract light emitted from said pixels,

wherein said optical unit refracts the light emitted from said pixels and emits the light in directions different from each other to make the light from different pixels incident to the right and left eyes of a viewer and to allow said viewer to recognize a three-dimensional image, and the lens pitch of said optical unit is 0.124mm or less.

4. (Currently Amended): A three-dimensional image display device, comprising:

a display panel which has a plurality of pixel sections each of which includes a pixel displaying an image for the left eye and a pixel displaying an image for the right eye, said pixel sections being provided periodically in a direction; and

an optical unit that consists of a plurality of lenses that refract light emitted from said pixels,

wherein said optical unit refracts the light emitted from said pixels and emits the light in directions different from each other to make the light from different pixels incident to the right and left eyes of a viewer and to allow said viewer to recognize a three-dimensional image, ~~and~~ ~~when the~~ wherein a distance between from a point in viewer within a three-dimensional visible range, ~~from which said viewer can recognize the three dimensional image and whose distance from to~~ the surface of said optical unit becomes a minimum distance, ND,

and wherein said distance is set to ND (mm) and the lens pitch of said optical unit is set to L (mm), said distance ND is 213mm or less, and said distance ND and said lens pitch L satisfy the following expression:

$$L \leq 2 \times ND \times \tan(1').$$

5. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 1, wherein said pixel sections consist of two types of pixels that are the pixels for the right eye and the pixel for the left eye.

6. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 1, wherein said optical unit is a lenticular lens.

7. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 1, wherein said optical unit is a fly-eye lens.

8. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 1, wherein said display panel is a liquid crystal display panel.

9. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 2, wherein said pixel sections consist of two types of pixels that are the pixels for the right eye and the pixel for the left eye.

10. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 2, wherein said optical unit is a lenticular lens.

11. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 2, wherein said optical unit is a fly-eye lens.

12. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 2, wherein said display panel is a liquid crystal display panel.

13. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 3, wherein said pixel sections consist of two types of pixels that are the pixels for the right eye and the pixel for the left eye.

14. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 3, wherein said optical unit is a lenticular lens.

15. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 3, wherein said optical unit is a fly-eye lens.

16. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 3, wherein said display panel is a liquid crystal display panel.

17. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 4, wherein said pixel sections consist of two types of pixels that are the pixels for the right eye and the pixel for the left eye.

18. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 4, wherein said optical unit is a lenticular lens.

19. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 4, wherein said optical unit is a fly-eye lens.

20. (Currently Amended) The three-dimensional image display device according to ~~Claims~~ Claim 4, wherein said display panel is a liquid crystal display panel.

21. (Currently Amended) A portable terminal device, comprising the three-dimensional image display device according to ~~Claims~~ Claim 1.

22. (Currently Amended) A portable terminal device, comprising the three-dimensional image display device according to ~~Claims~~ Claim 2.

23. (Currently Amended) A portable terminal device, comprising the three-dimensional image display device according to ~~Claims~~ Claim 3.

24. (Currently Amended) A portable terminal device, comprising the three-dimensional image display device according to ~~Claims~~ Claim 4.

25. (Original) The portable terminal device according to Claim 21, wherein said device is any one of a cellular phone, a personal information terminal, a game machine, a digital camera, and a digital video camera.

26. (Original) The portable terminal device according to Claim 22, wherein said device is any one of a cellular phone, a personal information terminal, a game machine, a digital camera, and a digital video camera.

27. (Original) The portable terminal device according to Claim 23, wherein said device is any one of a cellular phone, a personal information terminal, a game machine, a digital camera, and a digital video camera.

28. (Original) The portable terminal device according to Claim 24, wherein said device is any one of a cellular phone, a personal information terminal, a game machine, a digital camera, and a digital video camera.

29. (Cancelled).

Please add the following new claims 30 and 31:

30. (New) A three-dimensional image display device, comprising:

a display panel which has a plurality of pixel sections each of which included a pixel displaying an image for the left eye and a pixel displaying an image for the right eye, said pixel sections being provided periodically in a direction, forming a perpendicular line segment, wherein a viewer holds the three-dimensional image display device in hand and views the three-dimensional image while he/she moves; and

an optical unit that consists of a plurality of lenses that refract light emitted from said pixels,

wherein said optical unit refracts the light emitted from said pixels and emits the light in directions different from each other to make the light from different pixels incident to the right and left eyes of a viewer and to allow said viewer to recognize a three-dimensional image, and the lens pitch of said optical unit is less than 0.2mm.

31. (New) A three-dimensional image display device, comprising:

a display panel which has a plurality of pixel sections each of which includes a pixel displaying an image for the left eye and a pixel displaying an image for the right eye, said pixel sections being provided periodically in a direction, wherein a viewer holds the three-dimensional image display device in hand and views the three-dimensional image while he/she moves; and

an optical unit that consists of a plurality of lenses that refract light emitted from said pixels,

wherein said optical unit refracts the light emitted from said pixels and emits the light in directions different from each other to make the light from different pixels incident to the right and left eyes of a viewer and to allow said viewer to recognize a three-dimensional image, and wherein the perpendicular distance from a most peripheral line segment out of line segments at the surface of said optical unit to the plane of the viewer's eyes, is set to a distance_{OD} (mm) and the lens pitch of said optical unit is set to L (mm), wherein said distance OD is 350mm or less, and said distance OD and said lens pitch L satisfy the following expression:

$$L \leq 2 \times OD \times \tan(1').$$